

Abstract

A required valve timing change rate V_{req} is calculated so as to make a deviation D between a target valve timing VT_{tg} and an actual valve timing VT small and then a required speed difference $DMCR_{req}$ between a motor 26 and a camshaft 16 is calculated on a basis of the required valve timing change rate V_{req} . When the deviation D is larger than a predetermined value, a required motor speed Rm_{req} is calculated by adding the required speed difference $DMCR_{req}$ to a camshaft speed RC and a motor control value is calculated so as to control the motor speed RM to the required motor speed Rm_{req} . When the deviation D is not larger than the predetermined value, the camshaft speed RC is set as the required motor speed Rm_{req} and the motor control value is calculated so as to control the motor speed RM to the camshaft speed RC .